REMARKS

Status of Claims

Prior to this amendment, claims 1-15 were pending in the application. Claims 1-7, 10, and 11 are amended and new claims 16 to 23 are added to the application. Support for new claims 16 to 23 is found at least at paragraphs [0050] to [0054] of the published application. Thus, upon entry of this amendment, claims 1 to 23 will be pending and presented for examination.

Applicant believes that no new matter has been added by the claim amendments.

Rejections under 35 U.S.C 103(a)

A. Claim 1: Ohyama in view of Krause

The Examiner has rejected claim 1 as being unpatentable over U.S. Patent Publication No. 2002/0133826 to Ohyama in view of U.S. Patent No. 5,949,948 to Krause. The applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

The Examiner has failed to establish a *prima facie* case of obviousness because the combined teachings of Ohyama and Krause do not teach or suggest each and every feature of amended independent claim 1.

In the Office Action, the Examiner acknowledges that "Ohyama fails to teach: said media server generating a first series of searchable index frames from the video signal during transmission of the video signal, and storing said first series of searchable index frames thereon; and said client player generating a second series of searchable index frames from the received video signal and storing the second series of searchable index frames thereon, said client player accessing said first series or second series of searchable index frames and obtaining a required searchable index frame therefrom upon receipt of a request to modify the play parameters for display of the selected video, said required searchable index frame providing a new starting point for displaying the selected video, said media server and said client player being operatively connected". The Examiner, however, asserts that Krause teaches these features of claim 1.

Applicant respectfully disagrees with Examiner characterization of the Krause reference and submits that Krause fails to cure the deficiencies of Ohyama.

Krause discloses a video playback system that provides multispeed playback modes, such as fast forward and reverse playback. The video playback system includes a compressed program source 110, a user interface 120, a storage system 125, a decoder 150, and a display 160. The storage system 125 includes a playback/storage controller 130 and a storage device 140. Multispeed playback is achieved by efficiently retrieving I-frames from the storage device 140 at varying rates. Efficient retrieval of I-frames is achieved by retrieving blocks of data from the storage device that are predicted or indexed to contain the target I-frames.

Krause discloses, at column 11, lines 35-64 (emphasis added):

> A more efficient retrieval method can be used if the locations of the I-frames on the Storage Device 140 are known in advance. **FIG. 4 shows this second embodiment for retrieving I-frames for fast forward and reverse playback.** The sequence number I of the next I-frame to be retrieved is determined as in the first embodiment, based on the direction and rate of playback in step 400. The address or index number of the block on the storage device containing the beginning of this I-frame is then determined by referencing a table which is created in advance (not shown in FIG. 4) and used to initialize storage block counter k in step 410. This storage block is then retrieved, in step 420, **and the beginning of the I-frame is located by scanning the storage block for the unique sequence of bits used to identify the I-frames** and comparing the sequence number with the chosen value I, in step 430. SELECT is then set to 1, in step 440, so that subsequent data will be delivered to the Decoder 150. As shown in steps 450-456 (like steps 390-396 of FIG. 3) the Controller 130 will then continue to retrieve subsequent blocks from the storage device until the end of the I-frame is detected, at which time SELECT will be reset to 0.
>
> The information needed to **generate the table mapping I-frames to storage blocks** can be acquired at the time that the compressed bit stream is transferred to the Storage Device 140. This can be done using the alternative system block diagram shown in FIG. 5. In this embodiment, the User Interface 120 has been replaced by a more flexible Host Processor 520 which not only performs the functions of the User Interface 120 but also maintains the I-frame block mapping table. As will be appreciated by those skilled in the art, Host 520 can be any computer, microprocessor, microcontroller or other programmable or nonprogrmmable logic capable of handling the necessary memory management functions. **An I-frame Detector Circuit 515 monitors the compressed program data as they are transferred from the Compressed Program Source 110 to the Controller 130.** The I-frame Detector 515 interrupts the Host 520 each time **an I-frame is detected.** Host 520 reads the sequence number corresponding to the detected I-frame and matches it with the storage block currently being addressed on Storage Device 140. In most systems, the storage block addressing information

would originate on the Host 520, and therefore, would be readily available when generating the table.

Thus, Krause discloses a video playback system that retrieves I-frames from a storage device 140 of the video playback system for fast forward and reverse playback using an address or sequence number of a block in the storage device containing the beginning of an I-frame.

Krause does not teach or suggest a video-on-demand system that includes the feature of "said media server **generating** a first series of searchable index frames from the **encoded** video signal during transmission of the encoded video signal", as set forth in independent claim 1. In fact, the video playback system disclosed by Krause does not include a media server.

Krause also does not disclose or suggest a video-on-demand system that includes the feature of "said client player generating a second series of searchable index frames from the encoded received video signal and storing the second series of searchable index frames thereon" as set forth in independent claim 1. Instead, Krause discloses a video playback system that **retrieves I-frames** by retrieving blocks of data from a storage device for fast forward and reverse playback. The retrieval of I-frames from a storage device using an address or sequence number cannot be regarded as a teaching of the feature of "said client player generating a second series of searchable index frames from the encoded received video signal and storing the second series of searchable index frames thereon".

The combined teachings of Ohyama and Krause therefore fail to teach or suggest a video-on-demand system that includes each and every feature of independent claim 1. A skilled person, following the combined teachings of Ohyama and Krause could therefore not arrive at the subject-matter of independent claim 1 in any predictable manner.

Accordingly, independent claim 1 is patentable over the combined teachings of Ohyama and Krause.

B. Claims 2 and 4-7: Ohyama in view of Ellis

The Examiner has rejected claims 2 and 4-7 as being unpatentable over U.S. Patent Publication No. 2002/0133826 to Ohyama in view of U.S. Patent Publication No. 2004/0117831 to

Ellis. The applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

Ellis fails to cure the deficiencies of Ohyama and Krause. In particular, Ellis fails to disclose or suggest a video-on-demand system that includes the features of "said media server generating a first series of searchable index frames from the video signal during transmission of the video signal, and storing said first series of searchable index frames thereon", "said client player generating a second series of searchable index frames from the received video signal and storing the second series of searchable index frames thereon", and "said client player accessing said first series or said second series of searchable index frames and obtaining a required searchable index frame therefrom upon receipt of a request to modify the play parameters for display of the selected video, said required searchable index frame providing a new starting point for displaying the selected video" as set forth in independent 1. Amended independent claim 1 is therefore patentable over the combined teachings of Ohyama, Krause, and Ellis.

Dependent claims 2 and 4-7 include at least all the limitations of independent claim 1 and therefore dependent claims 2 and 4-7 are patentable for at least the same reasons independent claim 1 is patentable.

C. Claims 3 and 8: Ohyama and Guedalia

The Examiner has rejected claims 3 and 8 as being unpatentable over U.S Patent Publication No. 2002/0133826 to Ohyama in view of U.S. Patent No. 6,721,952 to Guedalia. The applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

Guedalia fails to cure the deficiencies of Jun and Liu. In particular, Guedalia fails to disclose or suggest a video-on-demand system that includes features of "said media server generating a first series of searchable index frames from the video signal during transmission of the video signal, and storing said first series of searchable index frames thereon", "said client player generating a second series of searchable index frames from the received video signal and storing the second series of searchable index frames thereon", and "said client player accessing said first series or said second series of searchable index frames and obtaining a required searchable index frame therefrom upon receipt of a request to modify the play parameters for

display of the selected video, said required searchable index frame providing a new starting point for displaying the selected video" as set forth in independent claim 1. Amended independent claim 1 is patentable over the combined teachings of Ohyama, Krause, and Guedalia.

Dependent claims 3 and 8 include at least all the limitations of independent claim 1 and therefore dependent claims 3 and 8 are patentable for at least the same reasons independent claim 1 is patentable.

D. Claim 9: Ohyama and Ellis

The Examiner has rejected claim 9 as being unpatentable over U.S. Patent Publication No. 2003/0122861 to Ohyama in view of U.S. Patent Publication No. 2004/0117831 to Ellis. Applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

Ellis fails to cure the deficiencies of Ohyama and Krause. In particular, Ellis fails to disclose or suggest a video-on-demand system that includes the features of "said media server generating a first series of searchable index frames from the video signal during transmission of the video signal, and storing said first series of searchable index frames thereon", "said client player generating a second series of searchable index frames from the received video signal and storing the second series of searchable index frames thereon", and "said client player accessing said first series or said second series of searchable index frames and obtaining a required searchable index frame therefrom upon receipt of a request to modify the play parameters for display of the selected video, said required searchable index frame providing a new starting point for displaying the selected video" as set forth in independent claim 1. Thus, independent claim 1 is patentable over the combined teachings of Ohyama, Krause, and Ellis.

Dependent claim 9 includes at least all the limitations of independent claim 1 and therefore dependent claim 9 is patentable for at least the same reasons independent claim 1 is patentable.

E. Claim 10: Ohyama and Watt

The Examiner has rejected claim 10 as being unpatentable over U.S. Patent Publication No. 2003/0122861 to Ohyama, in view of U.S. Patent Publication No. 2004/0221323 to Watt. The

applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

Watt fails to cure the deficiencies of Ohyama and Krause. In particular, Watt fails to disclose or suggest a video-on-demand system that includes either the features of "said media server generating a first series of searchable index frames from the video signal during transmission of the video signal, and storing said first series of searchable index frames thereon", "said client player generating a second series of searchable index frames from the received video signal and storing the second series of searchable index frames thereon", and "said client player accessing said first series or said second series of searchable index frames and obtaining a required searchable index frame therefrom upon receipt of a request to modify the play parameters for display of the selected video, said required searchable index frame providing a new starting point for displaying the selected video" as set forth in independent claim 1. Thus, independent claim 1 is patentable over the combined teachings of Ohyama, Krause, and Watt.

Dependent claim 10 includes at least all the limitations of independent claim 1 and therefore dependent claim 10 is patentable for at least the same reasons independent claim 1 is patentable.

F. Claim 11: Jun, Krause, Liu, Igawa, and Watt

The Examiner has rejected claim 11 as being unpatentable over U.S. Patent Publication No. 2003/0122861 to Jun in view of U.S. Patent No. 5,949,948 to Krause in further view of U.S. Patent Publication No. 2005/0213656 to Liu et al. in further view of U.S. Patent Publication No. 2004/0086262 to Igawa in further view of U.S. Patent Publlication No. 2004/0221323 to Watt. The applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

The Examiner has failed to establish a *prima facie* case of obviousness because the combined teachings of Jun, Krause, Liu, Igawa, and Watt do not teach or suggest each and every feature of amended independent claim 11.

In the Office Action, the Examiner acknowledges that "Jun fails to teach: generating, at the media player, a first series of searchable index frames from the video signal while transmitting the video signal, and storing said first series of searchable index frames at the media player; generating

a second series of searchable index frames, storing said client player generating a second series of searchable index frames from the received video signal and storing the second series of searchable index frames thereon, said client player accessing said first series or second series of searchable index frames and obtaining a required searchable index frame therefrom upon receipt of a request to modify the play parameters for display of the selected video, said required searchable index frame providing a new starting point for displaying the selected video, said media server and said client player being operatively connected". The Examiner, however, asserts that Krause teaches these features of the claim 11. The applicant respectfully disagrees with the Examiner's characterization of the Krause reference and submits that Krause fails to cure the deficiencies of Jun.

As noted above, Krause discloses a video playback system that provides multispeed playback modes, such as fast forward and reverse playback. Multispeed playback is achieved by efficiently retrieving I-frames from the storage device 140 at varying rates. Efficient retrieval of I-frames is achieved by retrieving blocks of data from the storage device that are predicted or indexed to contain the target I-frames.

Krause does not teach or suggest a method of enabling a user to modify play parameters of a selected video in a video-on-demand system that includes the feature of "**generating**, at the media player, a first series of searchable index frames from the **encoded** video signal during transmission of the encoded video signal and storing the first series of searchable index frames at the media player ", as set forth in independent claim 11. In fact, the video playback system disclosed by Krause does not include a media server.

Krause also does not teach or suggest a method of enabling a user to modify play parameters of a selected video in a video-on-demand system "generating, at the client player, a second series of searchable index frames from the received encoded video signal while receiving the video signal, storing said second series of searchable index frames and displaying the selected video at the client player" as set forth in independent claim 1. Instead, Krause discloses a video playback system that **retrieves I-frames** by retrieving blocks of data from a storage device for fast forward and reverse playback. The retrieval of I-frames from a storage device using an address or sequence number cannot be regarded as a teaching of the feature of "generating, at the client player, a second series of searchable index frames from the received encoded video signal while

receiving the video signal, storing said second series of searchable index frames and displaying the selected video at the client player".

The combined teachings of Jun, Krause, Liu, Igawa, and Watt therefore fail to teach or suggest a method for enabling a user to modify play parameters of a selected video in a video-on-demand system that includes each and every feature of independent claim 11. A skilled person, following the combined teachings of Jun, Krause, Liu, Igawa, and Watt could therefore not arrive at the subject-matter of independent claim 11 in any predictable manner.

Accordingly, independent claim 11 is patentable over the combined teachings of Jun, Krause, Liu, Igawa, and Watt.

G. Claim 12: Jun and Ellis

The Examiner has rejected claim 12 as being unpatentable over U.S. Patent Publication No. 2003/0122861 to Jun in view of U.S. Patent Publication No. 2004/0117831 to Ellis. The applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

Ellis does not cure the deficiencies of Jun, Krause, Liu , Igawa, and Watt. In particular, Ellis fails to teach or suggest a method of enabling a user to modify play parameters of a selected video in a video-on-demand that includes the features of "generating, at the media player, a first series of searchable index frames from the encoded video signal while transmitting the video signal and storing the first series of searchable index frames at the media player", "generating, at the client player, a second series of searchable index frames from the received encoded video signal while receiving the video signal, storing the second series of searchable index frames and displaying the selected video at the client player", and "searching said first series or second series of searchable index frames for a required searchable index frame, said required searchable index frame providing a new starting point for displaying said selected video" as recited in amended independent claim 11. Amended independent claim 11 is therefore patentable over the combined teachings of Jun, Krause, Liu, Igawa, Watt, and Ellis.

Dependent claim 12 includes at least all the limitations of independent claim 11 and therefore claim 12 is also patentable over the combined teachings of Jun, Krause, Liu, Igawa, Watt, and Ellis for at least the same reasons independent claim 11 is patentable.

H. Claim 13: Jun and Watt

The Examiner has rejected claim 13 as being unpatentable over U.S. Patent Publication No. 2003/0122861 to Jun in view of U.S. Patent Publication No. 2004/0221323 to Watt.
The applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

Watt does not cure the deficiencies of Jun, Krause, Liu, Igawa. In particular, Watt fails to teach or suggest a method of enabling a user to modify play parameters of a selected video in a video-on-demand that includes the features of "generating, at the media player, a first series of searchable index frames from the encoded video signal while transmitting the encoded video signal and storing the first series of searchable index frames at the media player", "generating, at the client player, a second series of searchable index frames from the encoded received video signal while receiving the encoded video signal, storing the second series of searchable index frames and displaying the selected video at the client player", and "searching said first series or second series of searchable index frames for a required searchable index frame, said required searchable index frame providing a new starting point for displaying said selected video" as recited in amended claim 11. Amended independent claim 11 is therefore patentable over the combined teachings of Jun, Krause, Liu, Igawa, and Watt.

Dependent claim 13 include at least all the limitations of independent claim 11 and therefore dependent claim 13 is also patentable over the combined teachings of Jun, Krause, Liu, Igawa, and Watt for at least the same reasons independent claim 11 is patentable.

I. Claim 14: Jun, Ellis, and Guedalia

The Examiner has rejected claim 14 as being unpatentable over U.S. Patent Publication No. 2003/0122861 to Jun, in view of U.S. Patent Publication No. 2004/0117831 to Ellis, further in view of U.S. Patent No. 6,721,952 to Guedalia. The applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

Guedalia does not cure the deficiencies of Jun, Krause, Liu, Igawa, Watt, and Ellis. In particular, Guedalia fails to teach or suggest a method of enabling a user to modify play parameters of a selected video in a video-on-demand that includes "generating, at the media player, a first series of searchable index frames from the encoded video signal while transmitting the encoded video signal and storing the first series of searchable index frames at the media player", "generating, at the client player, a second series of searchable index frames from the encoded received video signal while receiving the encoded video signal, storing the second series of searchable index frames and displaying the selected video at the client player", and "searching said first series or second series of searchable index frames for a required searchable index frame, said required searchable index frame providing a new starting point for displaying said selected video" as recited in amended claim 11. Amended independent claim 11 is therefore patentable over the combined teachings of Jun, Krause, Liu, Igawa, Watt, Ellis, and Guedalia.

Dependent claim 14 includes at least all the limitations of independent claim 11 and therefore dependent claim 14 is also patentable over the combined teachings of Jun, Krause, Liu, Igawa, Watt, Ellis, and Guedalia for at least the same reasons independent claim 11 is patentable.

J. Claim 15: Jun and Sherr

The Examiner has rejected claim 15 as being unpatentable over U.S Patent Publication No. 2003/0122861 to Jun in view of U.S. Patent Publication No. 2002/0032905 to Sherr.
The applicant respectfully traverses the Examiner's rejection and submits the following for the Examiner's consideration.

Sherr does not cure the deficiencies of Jun, Krause, Liu, Igawa, and Watt. In particular, Sherr fails to teach or suggest a method of enabling a user to modify play parameters of a selected video in a video-on-demand that includes "generating, at the media player, a first series of searchable index frames from the encoded video signal while transmitting the encoded video signal and storing the first series of searchable index frames at the media player", "generating, at the client player, a second series of searchable index frames from the encoded received video signal while receiving the encoded video signal, storing the second series of searchable index frames and displaying the selected video at the client player", and "searching said first series or second series of searchable index frames for a required searchable index frame, said required searchable index

frame providing a new starting point for displaying said selected video" as recited in amended claim 11. Amended independent claim 11 is therefore patentable over the combined teachings of Jun, Krause, Liu, Igawa, Watt, and Sherr.

Dependent claim 15 includes at least all the limitations of independent claim 11 and therefore claim 15 is also patentable over the combined teachings of Jun, Krause, Liu, Igawa, Watt, and Sherr for at least the same reasons independent claim 11 is patentable.

Conclusion

In view of the foregoing, withdrawal of the rejections under U.S.C. 35 103(a) is respectfully requested. Applicants believe that this application is now in condition for allowance and early notice thereof is respectfully requested.

Respectfully submitted,

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